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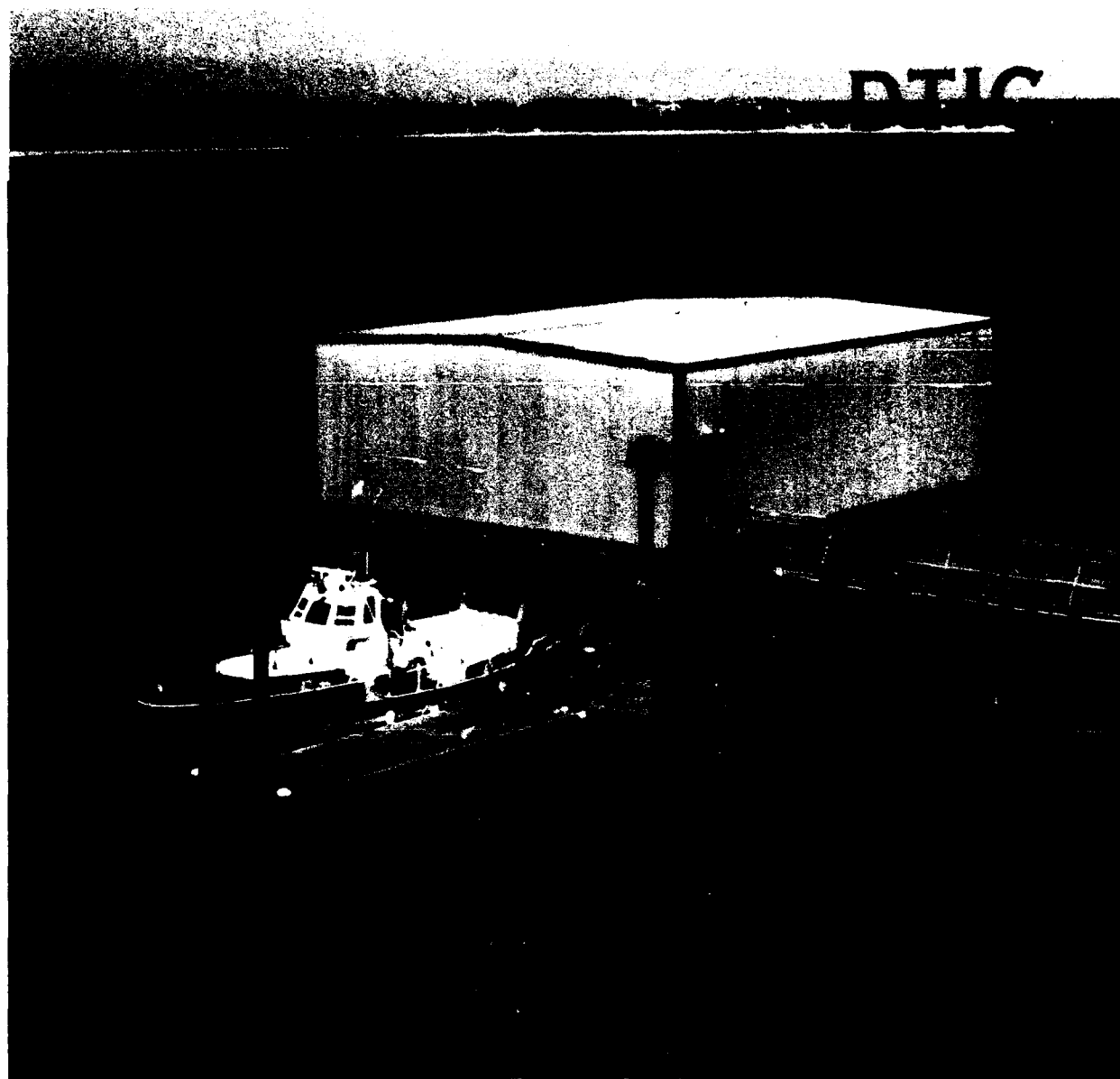
ON SCENE

U.S. Department
of Transportation

United States
Coast Guard



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THE COMMANDANT OF THE UNITED STATES COAST GUARD
WASHINGTON, D.C. 20593

AUG 25 1994

Dear "On Scene" Readers,

I appreciate the opportunity to share a few thoughts with the Search and Rescue Community. Since becoming Commandant, I have spoken to audiences around the country about the Coast Guard's heritage as "Life Savers and Guardians of the Sea." We are all proud of that heritage and we are certainly proud of the heroic men and women whose dedication preserves our unique Search and Rescue tradition.

In looking at the course ahead, I want the Coast Guard to be the premier Maritime Service in the World. Search and Rescue operations have been the cornerstone of our multi-mission success in delivering high quality services to the public.

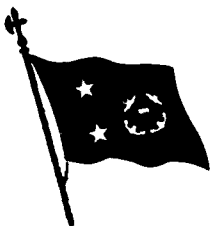
I recognize that we will face significant challenges in the coming years. The journey ahead is an opportunity to build on the traditional qualities we value most. Leadership will be a key ingredient to that process. Leadership by all Coast Guard personnel is absolutely essential to our continued success.

I am proud of the achievement of the Search and Rescue Community. Through sound leadership and commitment to our core values of Honor - Respect - Devotion to duty, we will continue our great reputation as the Guardians of the Sea, the Lifesavers for all of those who look to the Coast Guard in time of need.

Sincerely,


ROBERT E. KRAMER

Commandant, U.S. Coast Guard



CHIEF, OFFICE OF NAVIGATION SAFETY
AND WATERWAY SERVICES
UNITED STATES COAST GUARD
WASHINGTON, D.C. 20593-0001

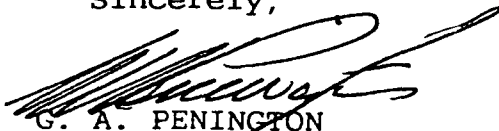
Dear "On Scene" Readers,

I am pleased to address you as the new Chief of the Office of Navigation Safety and Waterway Services.

As a former Chief of the Search and Rescue Division, I know how important our SAR readiness is to the public we serve. Since my time as Division Chief, the SAR community has benefited from developments in technology in several areas. Although new technologies often require additional technical skills to employ them, the fundamental principals behind their uses remain constant. Leadership, diligence, devotion to duty, attention to detail and a spirit of service to the public make it all work.

I anticipate success in working with all of the members of the SAR family. I ask that each member have a personal goal to constantly work toward the values that offer the best service to our customers, the American people.

Sincerely,


G. A. PENINGTON

Rear Admiral, U.S. Coast Guard

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ON SCENE 1994 ISSUE #2

Table of Contents

Letters to the Editor	1
Capsize of F/V LADY LYNN	3
Hypothermia Prevention: A Systematic Approach	5
Taking the Search out of SAR	7
Auxiliary Conducts CMEs on Coast Guard Boats	9
Helicopter Evacuation Safety Briefing for Vessels	11
GMDSS - The U. S. Experience (Part 2)	13
Rescue and Survival Systems Notes	17
47' MLB Update	18
Boat Crew Professionalism and Training	20
Help! SARMIS Bugs & Errors	21
The Recreational Boating Safety Program: Preventive Search and Rescue	23
Team AMVER/Air National Guard/Coast Guard MEDEVAC	25
Search and Rescue Highlights	26
G-NRS Phonest	27

RADM Gregory A. Penington
Chief, Office of Navigation Safety and Waterway
Services

CAPT Michael F. McCormack
Chief, Search and Rescue Division

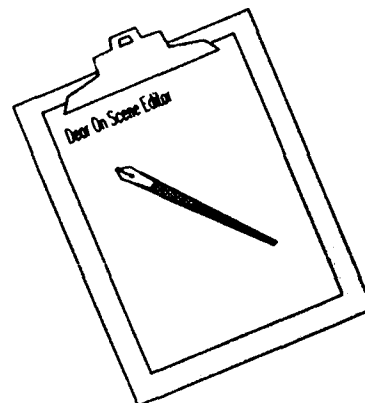
LTJG Jerome A. Popiel
Editor

COVER: Station Siuslaw River
(Courtesy of A. Gabriel, USCGAUX)

ON SCENE is a triannual, authorized, special interest publication, produced by the Office of Navigation Safety and Waterway Services for members of the U.S. Coast Guard and the SAR community. Editorial content is not to be considered as authority for official action, nor as record material. Individual views and opinions expressed do not necessarily reflect those of the Department of Transportation or the U. S. Coast Guard.

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Letters to the Editor



Dear On Scene Editor:

The Motion Picture and Television Office is a two-person operation responsible for making sure depictions of Coast Guard missions, people, hardware, etc. are portrayed accurately in entertainment projects and some reality TV programs.

When producers, writers, editors or others come into our office, we often rely on videotapes, magazines and publications like ON SCENE as training aids and reference books to get them up to speed on Coast Guard issues and also to "sell" story ideas to them.

ON SCENE is one of a few quality reference works we like to keep on the shelf. Even though the issue of pre-punched holes (BMC Flanagan's letter in the 1994 Issue #1) seems to be small potatoes, we'd really appreciate having that done as well to ensure a neat, efficient and accessible reference library.

We do make use of ON SCENE and appreciate all of the hard work by your staff and those folks in the field who make written contributions about "the way it is out there" to help keep us honest.

Please keep up the good work.

CDR John McElwain
CWO Dan Dewell
CG Motion Picture and TV Liaison Office

Editors note: Thanks! o/s

Dear On Scene Editor:

This letter is in support of BMCM Bless' letter that appeared in Issue #1 1994. As a new Officer in Charge I can fully understand where the Master Chief is coming from. Group Milwaukee has identified the problems that he mentions and has come up with viable solutions to ease the administrative burden on OinCs and XPOs.

To begin with, money for telephone and vehicle charges are skimmed right off the top of my budget at the beginning of the fiscal year. These charges are monitored and deducted at the group level. Our group SKs receive and reconcile all of our PES reports. We maintain a small target ledger and send copies of it to the group on a weekly basis showing the purchases we have made. They reconcile this and make any adjustments to the bottom line figure, including price changes to our STAR orders and fund mods (debits/credits). This takes a tremendous workload off the XPO's back. All unit PDRs are kept and maintained by the Group PERSRU, which is another time saver. They also have a different way to handle Enlisted Evaluations. Once one is completed by the supervisor and the marking official, the member is counseled. If the member is satisfied, he or she signs it. It is then sent to the group for approving official concurrence and signature and forwarded to HQ. This saves time and paper shuffling between the group and units.

These are just a few of the initiatives that Group Milwaukee has taken to alleviate some of the burden

placed on the "managers" of their subunits. We seem to be heading in the right direction.

BMC John P. Nekoloff
OinC, Station Kenosha, Wisconsin

Dear On Scene Editor:

I read the article "MAYDAY MAYDAY" by G. Doerffel, IPDCP XIII 7th (1994 Issue #1) and found it very interesting. But as a qualified watchstander at a boat station for three years, I found that the "I-SPI" method for distress communications is not effective enough. I agree that you should gather the information, but in a different order.

If a vessel states "MAYDAY" over channel 16, the first thing a watchstander should get is the position. If you don't have a position, you don't know where the vessel is or where to send the responding boatcrews. The second is the nature of distress so the watchstander

knows what resource and equipment are needed. The third is people on board so the watchstander can tell the boatcrew while it is en route. Next thing to find out is if the POB are in good health. Lastly, find out the intention.

Please don't get me wrong. The idea is excellent, but the order is not appropriate for proper communications between the vessel in distress, the watchstander and the responding boatcrew.

SN Martin D. Moran
CG Station Shark River

Editors note: Based on the National Search and Rescue Manual and the Coast Guard SAR School, the position of the distressed party is the first piece of information that should be obtained, followed by the number of people on board and the nature of distress.

o/s

* * * * *

Editors note: In the next issue we will introduce the new personnel assigned to G-NRS. As you can see from the phonelist printed at the back of this issue, a good percentage of the staff here are new arrivals. o/s

About Letters to the Editor:

ON SCENE seeks letters to the editor and will gladly publish them. Some rules do apply, though.

- 1) The author's name address and telephone number must accompany the letter.*
- 2) If requested, the author's name will be withheld, but nameless letters will not be considered.*
- 3) ON SCENE has the right to edit all letters for taste, grammar and length.*

Capsize of F/V LADY LYNN

By: LCDR J. E. Keene, CO Station New London

In the predawn hours of 27 February 1994, the F/V LADY LYNN rounded the point off Coast Guard Station New London, and headed for her pier. At the helm, Robert Conrad, captain of the 80 foot dragger, was glad to see the lights on in the owner's trailer, burning like beacons welcoming him home.

This had not been an easy trip. Two days earlier, the LADY LYNN had left New London to fish for whiting. The ship sailed to 80 miles south of Hudson's Canyon, where she encountered 35 foot seas and extreme weather. After fishing for only 12 hours, Conrad turned the boat for home. Three miles from Montauk Point, the crew chipped away the layer of ice that had collected on the rails and rigging. Three miles outside the Thames River, the boat stopped again to chip away more ice. Now, less than five hundred yards from the LADY LYNN's dock, Conrad turned the ship to make his approach to the pier. As the LADY LYNN began to turn, the boat began to lean dangerously. Water came rushing in through the scuppers, moving the boxes of fish and debris about the deck. As the LADY LYNN lost stability and began to capsize, Conrad swam through the open window in the pilothouse. Once outside, he grabbed on to the hull and clung to the now overturned vessel.

In the darkness, Conrad could see only three of his crewmen clinging to the hull. Two had been pushed back into the boat and trapped inside by the rushing water and flying debris. With his clothing frozen to his body, Conrad did not know how long he could stay alert in the 31 degree water. Despite cautions from his crewmen to save his strength, he began calling for help, hoping that someone in the trailer or at the Coast Guard Station would hear him.

At Coast Guard Station New London, SN Christopher Gagnon prepared for his 0600 hourly round. He did not relish going out into the bitter, 15 degree weather, but he didn't give it a second thought. As he stepped out of the Communications Center, winds in excess of 25 knots whipped the frigid air against his body. Undaunted by the icy conditions, he disregarded his

own personal comfort and continued attentively to his required duties. As he neared the north side of the station, he heard faint cries for help. Looking out over the water, he could just make out the silhouettes of people clinging to an overturned hull. SN Gagnon yelled to them "Hold on!" and ran back to the station. Once inside, he immediately sounded the SAR alarm, and notified the OOD, MK1 Don Godin.

Within four minutes, one of Station New London's 41' UTB's had arrived on scene. Unsure of exactly what had occurred, the coxswain stood off the LADY LYNN for just long enough to assess the situation. When the UTB pulled alongside, only one of LADY LYNN's crewmen was able to walk from the frozen hull to the UTB. The others were disoriented and suffering from hypothermia to such an extent that they seemed to be frozen in place.

After the first survivor had been warmed to the point where he could speak, he told SNBM Michael Mains that two of his friends were still trapped inside the LADY LYNN. While SNBM Mains radioed the Station to update them of the situation, BM2 Albert Smythe tapped on the hull to determine the level of consciousness and location of the people inside. Immediately, BM2 Smythe's rhythmic tapping was returned at two separate locations, confirming that both men were still alive.

With the tide coming in, it was critical to obtain divers, medical services, and hull cutting equipment as rapidly as possible. MK1 Godin immediately dispatched a second UTB to bring a cutting torch to the scene, and transport the four rescued survivors to shore. Simultaneously, SN Gagnon worked at a maximum tempo, calling area agencies for assistance. Because it was just after 0600 on a Sunday morning, there were no divers on duty within southeastern Connecticut. Recognizing the severity of the situation however, four state and local law enforcement agencies and the Navy's Dive Locker agreed to recall their divers. In addition, four fire departments responded with ambulances and hull cutting equipment, a paramedic responded to

provide medical expertise, and the Naval Submarine Base's Port Control responded with an additional boat and boom to contain any fuel which may have been spilled. Each provided invaluable advice to CDR Phil Heyl, Deputy Commander of Group Long Island Sound, who had arrived at Station New London and assumed operational control of the situation. By the time the first divers were on scene at 0655, the tapping from inside the hull had grown faint and finally ceased. Following a briefing by the owner on the layout of the LADY LYNN, the divers entered the water. Negotiating an endless maze of fish boxes, rigging, and debris, the divers searched in the dark, icy waters of the Thames River for the trapped crewmen. Although the decision to cut into the hull had been delayed due to the inherent danger of worsening the situation by losing a critical air pocket or cutting into a ruptured fuel line, that option became more viable as time continued to pass. Just as CDR Heyl made the decision to recall the divers and cut through the hull, the divers entered the compartment where they found the first individual entangled in floating line. After cutting him loose, they brought him to the surface where he was transported to shore and transferred to an awaiting ambulance.

For the next fifty minutes, the divers unsuccessfully searched for the second person. As time continued to pass, concern for the divers' safety increased. With one diver having been in the 31 degree water for over an hour, the potential for hypothermia was clearly an issue. When it became apparent that the case had shifted from rescue to recovery, the first set of divers was recalled. A second set of divers was fully briefed on both the layout of the vessel from the owner, and on "lessons learned" from the first set of divers. With the benefit of the experience and expertise of others, the second set of divers was able to locate and recover the second person within ten minutes of their arrival on scene.

Before the recovery was complete, over seventy-five personnel from eleven local, state, and federal agencies had arrived at Station New London ready to assist. Each brought with them a wealth of knowledge and experience and the best equipment available for the rescue and recovery efforts. In addition, reservists from Reserve Unit New London who were on duty that weekend provided critical logistical and operational support. Although the two people who were trapped in the hull perished, four people are alive today thanks to fortunate timing and the quick response by personnel from Station and Reserve Unit New London. In addition, valuable lessons were learned by station personnel which will assist them in the prosecution of future cases, particularly those which involve a large scale multi-agency effort.

(1) There is no substitute for eternal vigilance and attention to duty. The rapid initial response by SN Gagnon was key to the successful rescue of the first four individuals. Had he not conducted a thorough, proper round, those individuals may not have been alive today.

(2) It is extremely important that coxswains fully evaluate the scene before pulling alongside. When the UTB arrived on scene, the coxswain stood off of the LADY LYNN for just long enough to evaluate the situation. This proved fortuitous because much of the LADY LYNN's superstructure was sitting just below the surface of the water, and, in the darkness, the coxswain could have easily run into the LADY LYNN if he had approached the vessel from the wrong side.

(3) In multi-agency operations, where it may not be clear to everyone who is in charge, provide some physical means of identifying major players such as through the use of a vest or hat. Even though Coast Guard personnel were fully aware that CDR Heyl was in charge of the overall operation, this was not known by many of the personnel from the other agencies who were on scene. In addition, because four different fire departments were on scene at once, someone would have had to have been placed in charge of the cutting operation if the decision to cut into the hull had been followed through. This individual would need to have been readily identifiable by all personnel. By identifying key personnel through some readily visible means, there will be less confusion about who is "in charge."

(4) When seeking dive support for an urgent SAR case, request divers be recalled beginning with the first phone call. Upon learning that there were people trapped inside the hull, the Communications Watchstander immediately began placing phone calls to local agencies with divers trying to obtain their assistance. Initially, he was searching for divers already on duty; unfortunately no divers were available. A second round of phone calls then had to be placed to request that divers be recalled.

(5) When divers assist with a search and rescue case, assign a dive supervisor. As the day progressed, divers from five different agencies arrived on scene. Because no one was ever assigned as the dive supervisor, their efforts were not as coordinated as they could have been. Further, as discussed above, in the future when a dive supervisor is assigned, that individual will be given a vest to ensure all personnel arriving on scene recognize who is in charge.

(6) In large cases where there are a lot of people on scene, appoint a safety observer to keep an eye out for safety violations. One of the divers attached his tag line to the rail of the 41' UTB without requesting permission from the coxswain or even letting him know. The only way the coxswain found out about it was that one of his crewmen noticed it and pointed it out to him. Fortunately, the UTB did not get underway while the diver was attached to it.

(7) Conduct familiarization training on an annual basis with local dive teams. Despite the fact that there are many dive teams in our area, station personnel knew little about diving requirements, abilities, and limitations. By conducting annual familiarization training, the crew will be better informed and better prepared to assist divers in future operations.

(8) When other agencies are called in to assist, make sure that the Coast Guard is making the decision on what equipment and which personnel go on Coast Guard boats. When the fire departments arrived on scene, they began loading their gear into the UTB without obtaining permission. While their gear actually did need to be put on the UTB, they never should have

been allowed to do so until directed. The station controls its boats.

(9) If possible, remove excess equipment and personnel away from the scene. Because it was initially unclear whether or not the hull would be cut into, one of the UTBs on scene was filled with cutting equipment and personnel. After it was clear that the hull would probably not be cut into, the excess equipment and personnel could have been transferred to a Navy boat that was standing by to provide assistance, but was not actually participating in the recovery efforts. The cutting equipment and personnel would thus have been readily accessible but would not have been in the way.

(10) Whenever a case appears that it will attract major media attention, request public affairs assistance. As a minimum, assign a station crew member other than the OOD to handle media inquiries. This case received national media attention, and the station received numerous requests for interviews and information. Because the case demanded the full attention of the OOD, the Academy Public Affairs Officer came to the station and handled all media inquiries. His assistance was invaluable. o/s

Hypothermia Prevention: A Systematic Approach

By: BM1 T. C. Stentz, NMLBS Instructor

While sane mariners sit at home clutching a cup of coffee and watching the storms roll in, chances are good that somewhere nearby a Motor Lifeboat can be found beating into the seas in a flurry of wind-driven spray and diesel smoke. The crew will be hanging on, cold/ wet/ tired/ hungry etc., and probably wondering just how they got this job. No doubt this scene was repeated many times last winter, with a consistent theme: the crew was not properly dressed for the job.

Due to convenience, misinformation, inadequate survival budgets, etc. **the standard outfit for many crews in these conditions is a complete work uniform worn under anti-exposure coveralls.** This is the worst possible choice if being warm and comfortable is your goal. Cold and hypothermia affect crew safety and mission performance, and prevention

must be a top priority. The following article describes the proper approach to layering for cold/wet weather, which will make those nasty boat rides safer and more comfortable, if not pleasant.

FIRST LAYER: WICKING. Staying dry is essential to warmth. The clothing worn next to the skin must transport or "wick" moisture away from the body. The traditional cotton longjohns are the worst possible thing to wear, as they absorb and retain moisture, which will rob you of body heat through evaporation. As for wool, although it has good insulating properties even when wet, it's still less than ideal because it stays wet. Modern wicking fibers such as polypropylene, Thermaxtm, Capilenetm, etc. do not retain moisture, and will actually draw moisture from the skin and transport it to an absorbent outer layer. A perfect

example is the stock system polypropylene listed in the new Survival Systems Manual. This is excellent underwear, and it works well by itself or can be combined with a second layer for extreme cold.

SECOND LAYER: INSULATION. The insulating effectiveness of a fabric is related to how much warm air is trapped by it. This explains why a loose-knit or fuzzy material is better than one that is tightly knit. It also explains why two thin layers of a given material are better than one thick one. The function of the second layer is to trap air, which will retain body heat, and to absorb moisture from the first layer. Wool or cotton thermals are acceptable for a second layer if worn over a wicking layer, but there are a number of synthetic fleece or pile garments which do a much better job. An example of this type of clothing is the fleece "bunnysuit" coverall commonly worn with drysuits. Some of these garments are available with a nylon outer shell which provides a good wind barrier.

THIRD LAYER: MOISTURE BARRIER. The outer layer is designed to stop wind and water, so the inner layers can do a better job. Our choices here are limited to the anti-exposure coverall or drysuit. It is important to realize that the drysuit has no insulating properties of its own and will require extra insulation for cold weather. Also, most drysuits do not "breathe", so you may want to wear an absorbent second layer so that perspiration has a place to go.

EXTREMITIES. Most heat loss occurs at the extremities, especially the head, and it's especially important to dress these areas well. It is still important to layer properly, but thinner or all-in-one materials must be used to reduce bulk. For the head, a wool cap may work, but a heavy wicking hood or cap worn alone or under a wool cap will keep you drier and warmer. A rain hat/hood/sou'wester should be considered for wet weather. Gloves should be waterproof or highly water resistant, and a wicking liner glove will work better than wool. **For the feet, those soggy boondockers have to go! High top rubber boots are the only option for wet weather.** A wicking liner sock under a wool, cotton, or fleece outer sock will provide the best warmth. There are also a number of polypropylene-wool blend socks that work well. Insoles should be non-absorbent. We have found that a thick perforated foam insole works well.

RESPONSIBILITY. The importance of proper clothing cannot be ignored. Hypothermia is always a concern, but simply being a little cold can dramatically reduce your alertness, stamina and performance.

Changing into the proper clothing before getting underway should become habit, and every crewmember should have a well equipped gear bag ready for those late night SAR alarms. You will be surprised at how much more comfortable you are when you get rid of that damp work uniform. If you are a Coxswain, you must ensure that you and your crew have the right gear for the conditions, and lead by example. Too often we see units where the boatcrews are forced to do the job with substandard equipment. These crews have either accepted misery as a way of life or have used personal funds to purchase adequate clothing. CO's/OinC's must make survival (safety) equipment a priority in the recurring budget cycle. The clothing in the Rescue and Survival Systems Manual represents a minimum standard. If your boatcrew outfits do not meet or exceed those standards, your crew is not properly equipped for the job.

The equipment listed below is presently in use at the Motor Lifeboat School. It represents the best that we have been able to find, but it's by no means all that's available and should NOT be considered a sole source of supply.

BOOT SYSTEM

1. Lacrosse #89601 "Commander". 16" black vinyl knee boot with non-marking traction sole. Men's sizing only, subtract two from women's size for equivalent fit.
2. Lacrosse #91953 fleece boot liner, provides good insulation.
3. Lacrosse #90225 Air Cushion insole, provides good insulation, comfort and support.
4. Lacrosse #98503 Thermal sock, polypropylene/wool blend. Far superior to stock system wool sock.

SUPPLIER: Lacrosse Footwear Inc., (800) 323-2668. Call for local dealer.

THERMAL GARMENTS

1. Wickers #603 Fleece glove. Polypropylene liner glove.
2. Wickers #8035 Fleece ski hood. Polypropylene balaclava hood. Can be used as a cap, full face hood, or neck warmer.

SUPPLIER: Wickers Sportswear, (516) 543-1700

3. USIA #E*1 ExothermI. Fleece jumpsuit, works well with anti-exposure coveralls or drysuit.
4. USIA #EX2 ExothermII. Same as above but with additional pockets and a water/wind resistant outer shell.

SUPPLIER: USIA, (800) 247-8070 o/s

Taking the Search out of SAR

By: LT Robert C. Patton, G-NRS-1

The SAR Program has always been reluctant to state that we are, in fact, "taking the search out of SAR." First, we have limited means to measure this goal. Second, historically the Coast Guard has given little attention to the Search phase of SAR, tending to focus rather on the more glamorous Rescue phase.

The issue of "taking the Search out of Search and Rescue" is a very complicated one. Successful SAR is based on successful searching followed by successful rescue operations. Coast Guard rescue operations are successful and efficient in nearly all cases. Successful

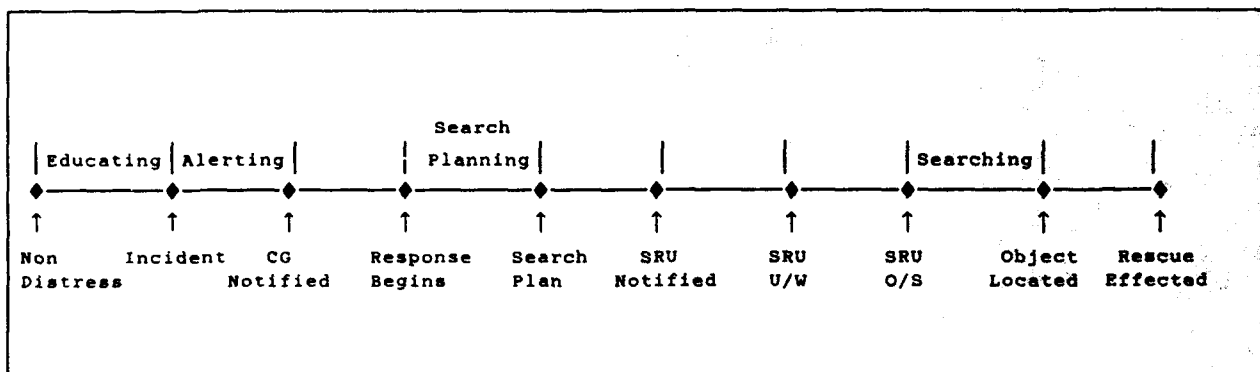
searching is best described in terms of high probability of success (POS). As explained in the National Search and Rescue Manual (NSM), POS is a product of the probability that the search object is in the search area (POA) and the probability of detecting that object using available sensors (POD). In short,

$$POS = POA \times POD$$

By referencing the SAR incident time line (figure 1), we can analyze the available SAR data to determine where to best improve efficiency.

SAR Incident Timeline

Figure 1



This time line accounts for critical time segments which occur, in varying lengths, during a hypothetical SAR case. In simple rescue cases, the search planning time segment is reduced to zero. In search cases, the search time can vary based on a number of factors, including the quality of the search planning tools and the search and rescue units' (SRU) sensors.

The key elements of increased SAR efficiency affect those time periods which are factors in POA and POD. If we can educate the mariner so well that search incidents don't occur, we will eliminate the need to search. The alerting and search planning segments

greatly effect the probability that SRUs will search in the right area (POA). Assuming SRUs are in the right area, the length of the searching segment directly correlates to the quality of SRU sensors (POD). The SAR Program has been sponsoring the Improvements to Search and Rescue Capabilities (ISARC) Project at the CG R&D Center to develop the tools we need to improve search planning and execution efficiency. Additionally, other CG programs and projects contribute directly to shortening the key segments of the SAR incident time line.

Improving Mariners' Education. The first segment of the SAR incident time line the CG affects is the

educating segment. Through education, the Boat and Fishing Vessel Safety programs work to reduce the need to search. Mariner education leads not only to incident prevention, but also to increased survival times and better alerting and detectability due to improved equipment, knowledge, and procedures.

Timely Alerting with Accurate Position

Information. The next, and perhaps most important part of the SAR incident time line, is the Alerting segment. With the advent of low cost GPS, cellular phones, EPIRBs, SARSAT, INMARSAT, and other technology advancements, we no longer have to wait for an overdue report to start the SAR process. This saves lives. Knowing where to start looking also helps immensely. New technology has helped in knowing the approximate location of the distress before SRUs are launched. By knowing when an incident occurs and knowing where it occurs, we significantly increase the probability that we will dispatch SRUs to the right area (increasing POA).

Improved Search Planning Tools. The next slice of time we can reduce is actual search planning time. ISARC Project efforts involving improved environmental files and user interface for Computer Assisted Search Planning (CASP 1.1 and CASP 2.0), Self-Locating Datum Marker Buoys (SLDMBs), sensor sweep width information, search object drift characteristics, and drift algorithms (models) are underway. Several enhancements have been made to our search planning process over the last four years to improve the odds that the search object is actually in the search area. These include a prototype CASP version (1.1) with a graphical user interface and enhanced environmental information files. Search planning time has gone from about three hours using CASP 1.0 to thirty minutes using CASP 1.1—allowing us to send search units to the most likely search area sooner. The next version of CASP (2.0) should further reduce search planning time to about ten minutes. SLDMBs increase the likelihood that we'll search in the right area. Since the buoys transmit drift information almost immediately, search planners can begin planning future searches sooner, maximizing utilization of scarce SAR resources. Since each buoy is uniquely coded, planners can use multiple SLDMBs in areas of conflicting currents and tides which affect drift. Using all these tools, we increase the likelihood that the search object is still contained within a relatively small area (increasing POA) and also increase the likelihood

that the people for whom we search will still be alive when we do find them.

Improved Search Sensors. The final time segment we seek to dramatically reduce with improved technology is the actual time spent searching. False inflators of "search time" in the SAR database have been induced by search planners' inclination to use a multitude of search resources to "hit it hard, hit it early." While this practice hopefully accomplishes our goal of shortening the time between the first unit arriving on scene and the time the object is located, technology can accomplish the goal more efficiently. Using technology, we can improve search planning, as noted above, as well as improve the way we search. With the implementation of Night Vision Goggles (NVG) for SAR, we are now a true day/night capable search force—we can start effective searching up to sixteen hours before "first light" in some cases. ISARC studies have shown that POD for a person in the water wearing a PFD with retroreflective tape is better at night for an NVG search than during the day for a standard visual search. Improvements in search radar, including the Forward Looking Infrared (FLIR), Side Looking Airborne Radar (SLAR), APS 137, and APS 135 have increased SRUs' ability to locate smaller search targets at longer ranges. In the same amount of time, we can now search larger areas (increasing POA) with better POD.

As stated above, successful searching is best described in terms of the probability of success (POS) for a particular search. Over the past four years, the SAR Program has focused research and development efforts on improving search planners' ability to correctly predict **where** to search. Additionally, we measure our efforts on saving lives and, to a lesser extent, property. This dimension of search efficiency is dependent on finding living survivors and salvable property at the end of our searches. All the efforts discussed above not only increase POS, but also increase the likelihood that we will find people alive.

The information available in the SARMIS database is not well suited to support or refute the Coast Guard's claim of improving SAR efficiency. Common sense reasoning based on the issues discussed above leads one to the conclusion that we are, in fact, taking the search out of SAR. Hard data to fully support or refute this claim isn't available. We have initiated a project this year to rewrite SARMIS to provide the information required to measure our effectiveness rather than merely our historical workload. In light of this, we use common sense to evaluate our measurement criteria.

Incidents. As discussed in reference (c), the number of total calls for assistance the Coast Guard has received has declined since 1980 from about 83,000 per year to about 52,000 per year. The number of life threatening or potentially life threatening incidents has decreased only slightly since 1980. Since 1988, the level has remained fairly constant, averaging about 10,000, or about 20 percent of all incidents. Likewise, the number of search cases remained fairly level at about 5,000 per year. If we were able to compare these changes in the number of incidents to changes in the total number of mariners, we could determine whether or not the

number of incidents, as a percentage of all "opportunities", is rising or falling.

Alerting. The time between an incident occurrence and Coast Guard notification can only be measured directly or when incident time is reported by survivors. The COSPAS-SARSAT system and other EPIRB systems have dramatically reduced the alerting segment in cases where EPIRBs provide distress alerting. Average initial detection/alerting by orbiting satellites is about forty-five minutes--worst case about sixty minutes.

Search Planning Time. Search planning time will be reduced using improved versions of CASP (figure 2):

Current Standard	Prototype Results	Future Standard (FY 1997)
CASP 1.0	CASP 1.1	CASP 2.0
3 hours	30 minutes	10 minutes

Figure 2

Accurate total water current information from SLDDBs along with improved environmental information ensures that the search areas determined by CASP are optimal in addition to being timely.

Search Time. The SARMIS database doesn't track the time between the first unit arriving on scene and the

time when the search object is located. As noted above, information in the database can be misleading when manipulated in attempts to approximate this measure. While reference SARMIS uses aggregate search time as a measure, no attempt was made to normalize the data to reflect the actual time required to locate a search object. Even so, the data shows no particular trend. o/s

Auxiliary Conducts CMEs on Coast Guard Boats

By: Donald C. Smutz, CG Auxiliary Department Chief, Vessel Examination Department

Group MILWAUKEE has come up with a good idea. They are working with the Coast Guard Auxiliary to have Auxiliary Vessel Examiners conduct a Courtesy Marine Examination (CME) on each of their boats, standard and nonstandard alike. During the CMEs, Group MILWAUKEE boarding officers get first hand knowledge on the techniques used by the Auxiliary and get a better understanding of the extensive safety requirements for awarding the CME Safety Seal decal.

Though this program was initiated at Group MILWAUKEE, other units in the Ninth District have begun inviting Auxiliary examiners to check their boats out. Now, it is spreading around the country - more and more units are participating. Also, not to be outdone, many state officials are having the Auxiliary examine their boats, in hopes of receiving the coveted decal when their boats meet the standards for a CME.

There are many benefits to this program and the display of the CME decal on government boats. Besides the understanding of the CME program that Coast Guard boarding officers develop, this program also provides the ties that help develop a better relationship between the Coast Guard and the Auxiliary. The display of the decal by Coast Guard boats demonstrates the importance of the CME program to the recreational boating public – a "do as I do" thing – as well as to the public in general.

The awarding of the CME Safety Seal decal is not automatic. A CME includes many safety items not in Federal or state requirements. For example, to be awarded a CME, a boat must have a suitable anchor for

the area of operation. A boat's installed navigation lights must be working and show the proper configuration, even during daytime. Boats under 16 feet must have a paddle, an oar, or some means of alternate propulsion. When the regulations were changed to require a wearable PFD for everyone on board, the Auxiliary immediately incorporated this requirement for awarding a decal, even though actual enforcement will not begin until May 1995. There are many more safety considerations in a CME, so why don't you invite the Auxiliary by your unit and see what they have to offer. This "exchange" will be very beneficial to everyone involved – Regulars can help the Auxiliary and the Auxiliary can help the Regulars. But most of all, everyone in the Coast Guard family gets to know each other better. o/s



A Rigid Inflatable Boat (RIB) receives a CME decal

Helicopter Evacuation Safety Briefing for Vessels

By: LCDR Scott C. Schleiffer, Air Station Kodiak

One of the most hazardous operations in the SAR toolbox is evacuation of personnel by helicopter hoist. Hazards come from several sources, can compound an already tense SAR situation, and are a sound basis behind the prohibition against hoisting people simply for administrative convenience. Many years of SAR experience, however, have proven the helicopter hoist to be effective if the crews maintain a high level of practical training and manage the risks.

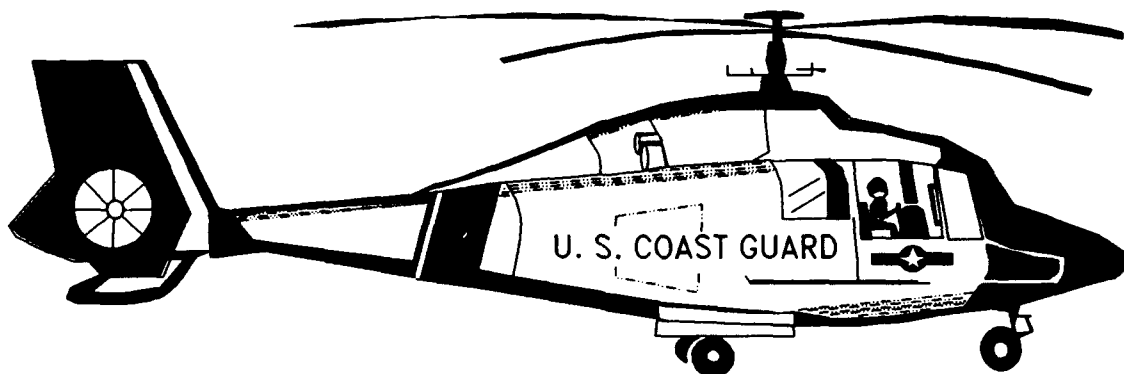
Recognizing risks, the endless variety of vessel layouts, and the fact that few vessels have ever had any "experience" being hoisted from, the Coast Guard Addendum to the National SAR Manual contains, through several editions, a "SAMPLE BRIEFING TO PASS TO VESSELS PRIOR TO HOISTING". The current version addresses core issues of operational safety, but it leaves out a lot of important information. It is also hard to read in an all CAPS format.

I drafted a replacement based on the existing language, my broad personal SAR experience as a C-130 pilot, and the similarly extensive rotary wing SAR experience of LT Harl Romine, LCDR Dave Simms and CDR Bill Peterson. Using their critical review comments, I tailored this version to address all the issues we know to be important to the safety of the hoist operation, as well as providing our customers with the world-class service which they have come to expect.

While editing this, I kept an eye toward my most common experience: an escorting fixed-wing SRU who jumps ahead of the helicopter, locates, and briefs the vessel; thus saving the helicopter precious on scene time. For our farthest offshore cases, when fuel is critical, this can make a difference in the flight safety of the helicopter. Having also stood OPCEN watches, I ensured that it can be used at any OPCEN by a watchstander, not necessarily an aviator, to brief a vessel by radio, while a helicopter was on the way.

The words in bracketed italics are not intended to be read; they are cues to the reader, and allow breaks for the vessel's crew to ask questions for clarification, or acknowledge *their understanding*. In our *shrinking* world, many of those we serve are foreign nationals and need passports. The brief addresses these considerations. Even if they arrive unconscious in a hospital bed, eventually INS and Customs have to handle their paperwork. Increasingly, our patients are getting some medications administered while still aboard their vessel; *once they reach a hospital*, the attending physician must know what the patient has already been given, in order to provide correct treatment.

The 2 page briefing as published here is suitable for cutting out and placing in the "Bernie" book checklist binder most pilots and many aircrewman carry. o/s



HELICOPTER EVACUATION SAFETY BRIEFING FOR VESSELS

I have a detailed briefing on the helicopter evacuation. Please let me know when you have everyone who will be involved in the operation assembled around the radio. If some members of the crew cannot be spared due to duties, do the best you can to assemble the remainder. Let me know when you are ready. *[Pause until advised the crew is assembled]* I will begin this detailed briefing, but I will pause periodically to answer your questions. If you have none after checking that everyone understands, simply say, "Go Ahead".

A Coast Guard helicopter is enroute to your location. You need to make some simple preparations to maximize the safety of the hoisting operation for the patient, your vessel, and the helicopter.

Lower or stow all masts and booms that can be lowered. Provide a clear area for hoisting, preferably on the port side of the stern. Think about the clearance of rigging lines and antennas, as well as the chosen deck area. The helicopter pilot will make the final determination as to the location of the hoisting area upon arrival. Plan to keep all unnecessary personnel out of the way. All personnel on deck must wear PFD's. Do not take any flash photographs because they distract the helicopter crew during this demanding operation. During the entire hoist operation, gale force winds are generated by the rotor system of the helicopter and are strongest directly beneath it. Ensure that all loose gear is stowed or secured so as not to pose a personnel injury hazard due to being blown around on deck, or a hazard to the helicopter's rotor system or engines. *[Pause]*

Ensure that the patient is wearing a PFD, unless their condition absolutely prevents it. The patient should be informed of any instructions of the rescue device. If a litter is used, the uppermost strap (chest strap) must be placed under the patient's arms and over the patient's chest. ALL other straps are to be placed over the patient's body. If a basket is used, the patient should sit in the bottom of the basket, with their back to one end and must keep their arms and legs inside the basket until the basket is brought inside the helicopter. The patient should have appropriate personal identification such as a driver's license, social security card, or passport and immunization record, a record of any medication(s) administered, and a modest supply of personal items, including any prescribed medications they may be taking regularly. Use of a small soft-type bag is recommended for packing these items. It should be tied to the litter between the patient's legs, or placed in the basket with the patient. Do not tie it to the hoist cable, hook, or steadying line. *[Pause]*

When the helicopter arrives in your area, change course to place the wind 30 degrees off your port bow and continue at standard speed. Once steadying up on the new heading, and after you are satisfied that you have no hazards on your radar, turn it to standby so that it does not radiate. You may turn it on again as soon as the helicopter departs the area with the patient. This new heading may be modified again at the request of the helicopter pilot upon arrival. Ensure that any heading the pilot asks for will not endanger your vessel. For smaller vessels, the rotor wash may make it difficult to steer the vessel. Advise the pilot immediately if any sea conditions or hazards exist which will limit your navigational capabilities. *[Pause]*

The helicopter will provide all of the required equipment for the hoist operation and will brief you prior to commencing the hoist operation. The helicopter may first deliver an orange steadying line with weighted bags at the end. Until the hoist operation is completed, one of your crewmembers must tend this line at all times, keeping the line free from fouling. The rescue device should be guided to the selected location on deck by the vessel's crew using the steadying line. On each approach, allow the rescue device to touch your vessel, to discharge static electricity. If the rescue device has to be moved to the person being evacuated, unhook it from the hoist cable. Do not move the rescue device from the hoisting area with the hoist cable still attached. If the cable is unhooked, do not, I repeat, do not attach the hook or the cable to any part of your vessel. For everyone's safety, the helicopter may move off to the side while the patient is prepared for the hoist. [Pause]

Upon signal from your vessel, the helicopter will move back over the vessel and lower the hook. Allow the hook to touch your vessel to discharge static electricity, then fasten the hook to the rescue device using the large part of the hook. When everyone is ready for the hoist, have the deck crew give a vigorous THUMBS UP signal to the helicopter. Ensure that the steadying line is tended to prevent the rescue device from swinging excessively, this is the primary reason it is being used. Once the rescue device is inside the helicopter, the steadying line will probably be discarded by the helicopter crew. You may recover it or toss it overboard, but ensure you do not foul your screw either way. [Pause]

When the helicopter, Call Sign "Coast Guard Copter _____", arrives, it will contact you on _____. The helicopter will look over your vessel, give final instructions, and begin the hoist. Do you have any questions? [Pause] The ETA of the helicopter is _____. I may be contacted on _____ if you have any further questions.

GMDSS—The U. S. Experience (Part 2)

By: Mr. Joe Hersey, G-TTM-2

Editor's note: This is the continuation of an article from last issue.

A correction from the editor's note on part 1: CG Standard direction finder (DF) will have the capability to home in on "A" and "B", category 1 and 2 EPIRBs. o/s

Many search and rescue authorities are operating two maritime distress and safety systems, one for SOLAS GMDSS ships and another for non-SOLAS ships. We, as a rescue agency, cannot afford to do so. In fact, GMDSS was sold in the U.S. as a way of being more efficient, reducing resources, and taking the "search" out of search & rescue.

What happens when SOLAS ships cease guarding VHF channel 16 in 1999? What will the fisherman do, when he sees a cargo ship bearing down on him at night?

How many GMDSS-equipped ships have decided to turn off their VHF channel 16 watch receiver today? One of our RCCs recently instructed a disabled yachtsman off the coast of Mexico to release a flare to get a nearby passenger vessel to turn its VHF radio on. Another charter boat sank after missing a storm warning broadcast; the radio apparently was on, but tuned to the wrong channel.

Neither we nor IMO has the authority to require radio-equipped recreational vessels to carry GMDSS equipment, nor would we be successful in requiring commercial fishermen carry GMDSS equipment. We considered asking IMO to rescind the SOLAS provision allowing ships to discontinue their 2182 kHz and VHF channel 16 watch after 1999, but realized that proposal would face considerable opposition. Even if we were successful, we'd have difficulty enforcing such a

watchkeeping requirement. We have difficulty enforcing it now.

However, if we cannot require all ships carry GMDSS equipment, we can require manufacturers of maritime radio equipment include a GMDSS capability. We asked the Radio Technical Commission for Maritime Services (RTCM) to develop a low-cost standard for digital selective calling, limited to about 15% of the radio's retail cost. RTCM did this, and a year and a half ago, the Coast Guard petitioned the U.S. Federal Communications Commission to require all marine radios sold in the U.S. after 1997 to have such a DSC capability. The FCC is still studying the matter, and expects to release a notice of proposed rulemaking on this soon. While this may not totally solve the problem (used radios without DSC could still be sold), it would help alleviate it.

The International Telecommunications Union Sector for Radiocommunications (old CCIR) picked up this problem as well, and adopted three new classes of DSC. Two of them, the Class D and the Class E, are very similar to the RTCM standard intended for non-SOLAS vessels. These lower-cost versions of DSC can send and receive routine, safety, urgency and distress individual calls, and all-ship calls.

If marine radios have a DSC capability, then the problem of communications incompatibility between SOLAS and non-SOLAS vessels should mostly be resolved; but, we better have resolved the procedural problems we now face with DSC.

GMDSS problems needing urgent solutions

Effect of loss of operators. GMDSS is forcing a fundamental shift in maritime radiocommunications away from experienced operators on ship and shore, and toward use of automated distress alert systems largely by lesser trained or untrained persons. IMO addressed the problem of training GMDSS operators aboard SOLAS vessels, but the problem of training operators of GMDSS equipment aboard non-SOLAS vessels, particularly voluntarily-equipped recreational and fishing vessels, remain largely unresolved. The ITU Radio Regulations are filled with radiocommunications procedures. Radio officers and coast station operators are familiar with these procedures, but are the yachtsmen and fishermen? GMDSS places about a half dozen pieces of equipment on the bridge, each demanding the attention of bridge watchstanders with all sorts of alarms (NAVTEX, SafetyNET, VHF DSC, MF DSC, Inmarsat, HF DSC). One urgent marine information broadcast can

conceivably trigger an alarm on each system. Won't the watchstander who has already turned down the VHF channel 16 and 2182 kHz guard also start turning off GMDSS alarms? Can GMDSS watchkeeping requirements be enforced? Finally, will ships continue to send voluntary safety reports (e.g. AMVER and meteorological observations) once they lose a dedicated radio operator? We believe they can if training is adequate and radio design simplifies the work of the operator.

False alerts. Others have addressed this issue, so I won't elaborate. Suffice it to say that the problems affects every RCC, as well as every ship master having to react to a distress alert. After the need for a global database, this may be the biggest GMDSS problem of all. Unless it is managed, the integrity of the GMDSS may be at stake. A combination of actions, such as equipment redesign, labeling, and active violations enforcement, may be the best solution.

The Coast Guard Atlantic Area operations center reported of 163 distress alerts received so far this year, 28 of them were by Inmarsat A or C. Each of the 28 were false alerts. In comparison, 31 of these were alerts from 121.5 MHz EPIRB alerts.

UK Falmouth RCC reported the following alerts for 1993:

System	False alerts	Real alerts
Inmarsat A	7	1
Inmarsat EPIRB	2	0
Inmarsat C	341	5
2 MHz DSC	37	0
121.5 EPIRB	131	3
243 EPIRB	66	0
406 EPIRB	276	17

Integrated GMDSS console. Although we support such consoles, we understand that at least one is designed to transmit a distress alert over every installed GMDSS unit once the distress button is pressed. However integration appears not to work for distress acknowledgments. Once a distress acknowledgment is received, only the unit that received the acknowledgment is reset. The other DSC units in the console will keep sending distress alerts.

HF Radiotelex. HF radiotelex equipment is still relatively difficult to operate. It need not be. Low cost equipment could be designed to find a coast station, select the strongest carrier, and send a message as simply as is done now over Inmarsat.

Global ship radio database. Although ITU attempted to define one ship identity code to identify GMDSS distress alerts, we have in fact eight (ITU Maritime Mobile Ship Identity, 406 MHz EPIRB serial identity, Inmarsat EPIRB identity, Inmarsat-A identity, Inmarsat-B identity, Inmarsat-C identity, radio call sign, and selective call number (radiotelex identity)). The least effective identity of them all, to date, is probably the MMSI, the primary GMDSS identity. Although ITU has taken steps to improve access to their database through their "TIES" system, the problem won't be solved until administrations notify ITU of their assignments. Some administrations never have. Finally, schemes need to be developed so that needed ship registration data is automatically retrieved and forwarded with distress alerts to responsible RCCs to save critical time.

DSC procedures. DSC-equipped radios are probably the last element of the GMDSS to be put in place. Since DSC has the potential to become the most-used GMDSS element, it may become the most troublesome if it isn't designed carefully. Let me list some of DSC problems that were found:

1. The DSC false alert rate is the worst of any GMDSS system.

2. DSC is often being used improperly. We've had alerts that were relayed twice, something that's not supposed to be possible with DSC. The ship that relayed the relayed call entered the wrong identity for the ship in distress, further complicating the RCC response. Another radio apparently automatically relays all unacknowledged distress alerts, including relayed alerts.

3. The DSC programming used by some ship radio manufacturers is cumbersome. For example, how many buttons does an operator have to push to receive an urgent marine information broadcast on the typical DSC radio, once he receives an alert? Why not allow the radio to automatically receive such a call.

4. How are MMSI own-ship identities entered into the radio? For example, how will they be entered into a previously owned radio purchased by a yachtsman? How will they be obtained in a country where recreational vessel radios have been delicensed (as is being considered in the U.S.)?

IMO decided that DSC is to be the means of distress alert and initiating communications over terrestrial radio, and we are fully committed toward making it work. But we will need help in doing so.

GMDSS shore-based infrastructure. A key GMDSS goal may be stated this way: to relay a distress alert to the responsible RCC as quickly and reliably as possible, along with information important for responding to the alert. Current data distribution procedures, that were adopted for expedient GMDSS implementation, and deliver alerts to SPOCs and Associated RCCs rather than responsible RCCs, should not be permanently institutionalized.

Where SAR regions exist, distress alert messages with registration information should be automatically routed to the responsible RCC. Distress alert distribution plans of COSPAS-SARSAT and Inmarsat should also be harmonized.

Training. Training has also been discussed, so I won't elaborate further. Training must, however, include the non-SOLAS operator. In the U.S. the problem will be especially acute. Recreational boaters aren't required to have operator permits, unless they sail outside U.S. waters. Those commercial vessel operators or international yachtsmen who need a restricted radiotelephone operator permit can get one simply by completing the form and sending a check; no tests are required. GMDSS is still an unfamiliar concept throughout most of the U.S. maritime community and the U.S. Coast Guard. Training is a problem we haven't yet solved.

How will coming changes in satellite communications affect the GMDSS?

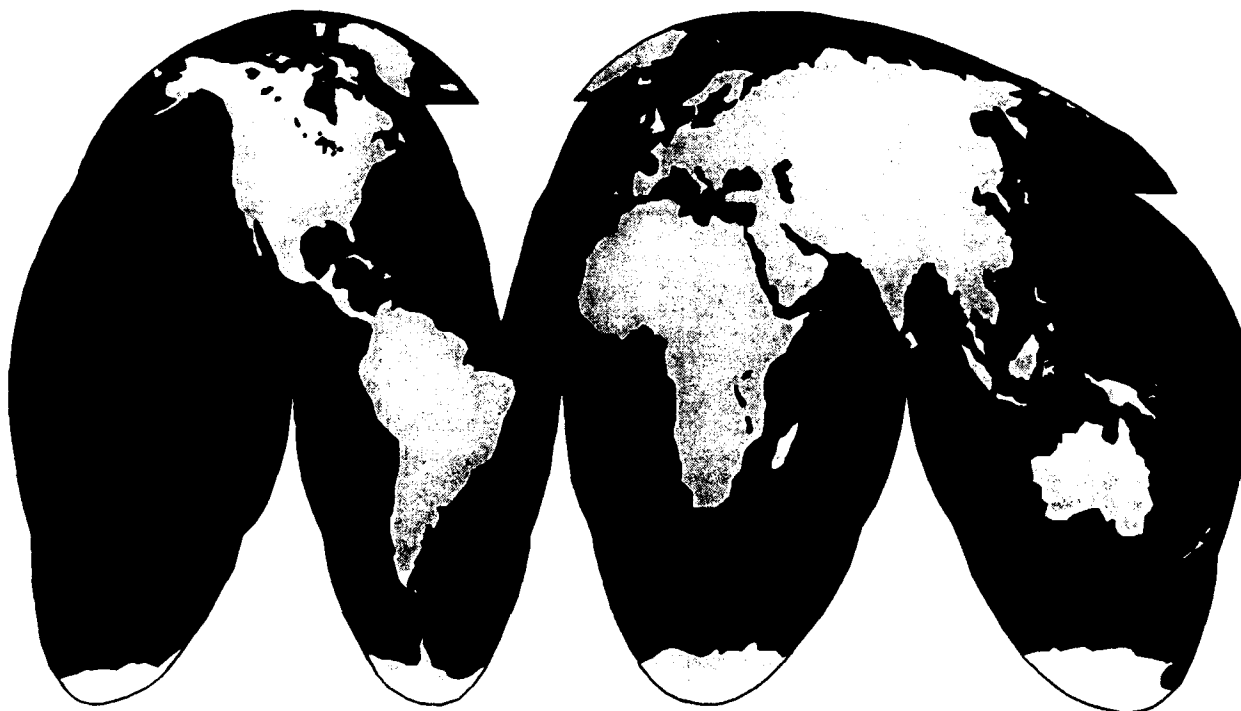
Communications primacy. The January 1994 edition of "Ocean Voice", published by Inmarsat, noted in a survey response from 23 shipping companies representing 14 countries and 703 vessels "the overwhelming acceptance of Inmarsat-C as the basic tool for meeting GMDSS requirements. Very few companies have found a GMDSS solution that does not involve Inmarsat-C", and "Inmarsat-A appears only rarely as part of a GMDSS solution." On the other hand, the January 1994 edition of "Transat", also published by Inmarsat, noted in an article about "revolutionary" land mobile uses of Inmarsat-C that "The number of Inmarsat-C users has increased by around 500 per cent in three years and annual growth is currently just under 48 per cent." Inmarsat system and spectrum sharing of land and aeronautical mobile with maritime mobile is a mixed blessing: while it keeps costs down, it adds to circuit congestion. We certainly don't oppose sharing in the GMDSS bands. However, we believe our coast earth station operators should report periodically on progress in developing a means

of distinguishing between maritime, aeronautical, and land mobile-satellite transmissions, to allow for continued primacy of maritime services. Such reporting is required in the U.S.

Regional satellite systems. The ITU World Administrative Radio Conference of 1992 opened the GMDSS satellite spectrum in the Pacific and Americas to regional satellite systems providing land, aeronautical and maritime mobile communications. The International Chamber of Shipping raised concern to IMO regarding this decision. To protect maritime safety, the ITU required these systems to participate in the GMDSS before gaining full rights to the band. The U.S. asked IMO to prepare guidelines for regional satellite systems participating in the GMDSS, in order to ensure maritime safety communications will always be available and adequate for all mariners needs. There is risk in allowing regional satellite systems to operate in the GMDSS bands, but there are benefits too. For example one provider, the American Mobile Satellite Corporation, plans to allow Inmarsat B, C and M ship earth stations to operate over its system. The benefit is more competitive pricing and improved least cost routing to the mariner. The disadvantage is increased spectrum congestion and reduced maritime market

share and maritime influence in operation of satellite systems. We'd want to ensure that an RCC would not need to know what regional satellite system a ship was tuned to in order to communicate with it.

Future satellite systems and GMDSS II. IMO developed the GMDSS concept based upon nine functional requirements, now embodied in SOLAS Regulation IV/4. The GMDSS was based upon an expansion of existing and newly available maritime communications technology: HF radiotelex, VHF and MF/HF radiotelephone, the Inmarsat-A ship earth station, NAVTEX, and satellite emergency position indicating radiobeacons (EPIRBs). Nearly all of these systems will have to compete with "generic" systems designed to serve all mobile telecommunications users. Maritime market share in these systems will be small, and maritime influence in their design will be limited. The next generation GMDSS will likely be more diverse and technically complicated and less of a maritime system, but perhaps less expensive and easier to use. We believe that the GMDSS architecture as defined by IMO will have to be a living one, and will have to accommodate non-SOLAS vessels, to keep up with technology changes as well as the needs of the mariner. o/s



Rescue and Survival Systems Notes

By: CWO Richard W. Todd , G-NRS-2



The summer transfer season is almost over and I find myself in Headquarters . I guess the fifty bucks I paid the detailer wasn't enough. I have relieved CWO Hyde as the Rescue and Survival Systems Manger for the Search and Rescue Division, Facilities Branch here at Headquarters. I am a former Aviation Survivalman (ASM) with over 15 years of survival experience and five Air Station tours behind me.

I now find myself at the helm of a CG LPD, (Large Plastic Desk) in the role of the "Survival Manager". In an effort to continually upgrade and maintain the most advanced survival gear in the Coast Guard, I may require a little input from the field. The gear you have now is a direct result of your input. If you feel there's a better mouse trap, let me know. It's hard for an individual driving a desk to determine what exactly your needs are in the field without any input. My number is (202) 267-1585. My "E" mail address is, R.Todd/G-NRS.

AUTOMATIC INFLATING SURVIVAL VEST

The first set of 50 newly developed Automatic Inflating Survival Vests are on their way to a few units for a 90 day test and evaluation period. Upon completion of the evaluation period you may expect to see these vests as soon as January, 1995. This vest will provide its user with positive righting movement (face up) with 35 lbs. of buoyancy (vice the 16 lbs. that the current vest

provides), a totally enclosed inflation bladder, two pockets for the stowage of survival components and an automatic inflator. Inflation of the vest can be accomplished orally, manually (using a 33 gram CO2 bottle), or automatically (powered by a 9 volt battery). The automatic backup electric inflator activates the CO2 bottle after approximately 15 seconds of continuous immersion.

NEW BOAT CREW BELT

After much trial and effort and many prototype revisions, a new generation of the Boat Crew Safety Belt is on the shelf. The belt provides its user with the minimum amount of slippage and the maximum amount of movement without going to a full harness. The new design uses neoprene vice foam for a better

fit and a double quick release safety buckle. The belt is available in two sizes (small and regular) from Life Saving Systems at (813) 645-2748. Specify P/N 218. This belt will be available under NSN 4240-01-302-4452 soon. The current belt in use should be replaced at the normal replacement rate. o/s

47' MLB Update

By: LTJG Jerome A. Popiel, G-NRS-2

***Estimated delivery
of first boat is
First Quarter,
Fiscal Year 1997.***

The offices involved in the acquisition of the 47' Motor Lifeboat are generating plenty of activity these days, and for good reason. Key Decision Point 4 (KDP4) is right around the corner. This decision will be made at the Coast Guard Acquisition Review Council (CGARC), which is scheduled for mid-October.

KDP4 is the point where CGARC takes a thorough look at all of the information gathered during the Operational Test and Evaluation (OT&E) and decides whether or not to proceed to full production. We are over half way through the yearlong OT&E period and are getting a picture of the overall operational capability of the 47' MLB.

Each of the five stations conducting the OT&E, Stations Cape May, Oregon Inlet, Tillamook Bay, Umpqua River and Gloucester, have been collecting data by using the boat for normal station operations. Preliminary reports show that the boat has no problem meeting many of the critical operational issues of maneuverability, survivability, seakeeping, habitability, stability and supportability. We must yet answer questions about exactly how the boat fits in to the scheme of operations, both at the individual station level as well as Coast Guard wide.

Since the update in the last issue of ON SCENE, the testing stations have reported good success in a variety of operations including SAR, towing, alien migrant interdiction operations (AMIO) and law enforcement.

One of the benefits of the OT&E process is the opportunity to recommend changes to the design of the boat for the production run. At present, the Configuration Control Board (CCB), comprised of members from each office involved, has evaluated over 100 Recommended Engineering Change Proposals (RECP). The RECPs range from minor equipment installment details to significant design changes. The suggestions come from a variety of sources, but primarily originate at the preproduction stations.

The suggested changes are aimed at perfecting the design of the boat for the future generations of boat operators. One example is the arrangement of the forward handrails. The original design allowed crewmembers to have rail support out to the forward-most part of the bow. After several months of testing, several stations agreed that the handrails were susceptible to cracking and obstructed maneuvering in some cases. Although the forward rail design had some advantages, the removal would likely improve the overall effectiveness of the vessel. The CCB considered the input and authorized the removal of the rails (Figure 1).

The handrail is just one example. Most of the suggested changes have good arguments on both sides, and sometimes come down to personal preference. Occasionally the changes are circular. This is where design items that were changed from the prototype to the preproduction model get changed back to the original. This makes the job of the CCB formidable at best.

One question that we often hear is "Where are the boats going to be sited?" The original plan was for the 47' MLB to replace the 44' MLB on a 1-for-1 basis. Because of the constantly changing demands on multimission stations, we have had to shift towards a broader resource management perspective. In response to this, the project staff initiated a Fleet Mix Analysis. This study considers the historical caseload demand, geography, resource usage guidelines and weather data, among others, and will generate the optimal number of 47' MLBs to be incorporated into the future boat fleet.

A good deal of this information comes from the SARMIS data base. The study should yield an approximate number of boats and a suggested assignment scheme.

This is not an easy problem to solve, as there are a lot of variables and uncertainties to consider. For example, how do we address cases of overlapping areas of responsibility, taking into consideration whether other boat resources are available? What about cases where more than one resource responds? In all cases we have attempted to model the analysis as close to actual operations as possible.

The initial analysis indicates that the 47' MLB **may** be able to replace previous combinations of 44' MLBs and 41' UTBs at certain stations. Some stations that previously did not have a 44' MLB may get a 47' MLB. This is driven by the fact that case demands sometimes exceed acceptable limits in areas that are covered currently only by 41' UTBs. The final report is yet to

be seen, but apparently it is confirming a number close to the original approximation of 100 boats.

Another question we hear is "When will the boats be in the field?" The latest schedule indicates that delivery of the first boats will commence first quarter, FY-97, with 20 boats the first year (100 boats total over 5 years). The project timeline is rather sensitive to administrative delays as well as construction delays, so one must understand that the delivery commencement date is tentative. Delivery completion is expected in 2001, so you can expect to see some 44' MLBs in the fleet for a while.

As you have probably guessed by now, if you have followed the progress of the project, the MLB replacement is very dynamic process. The fact that it is a relatively customer-driven project helps make it so. By reinventing some traditional development dogma, the project is hopefully succeeding in delivering a boat that will meet the needs of boat operators, and therefore our SAR customers, well into the future. o/s

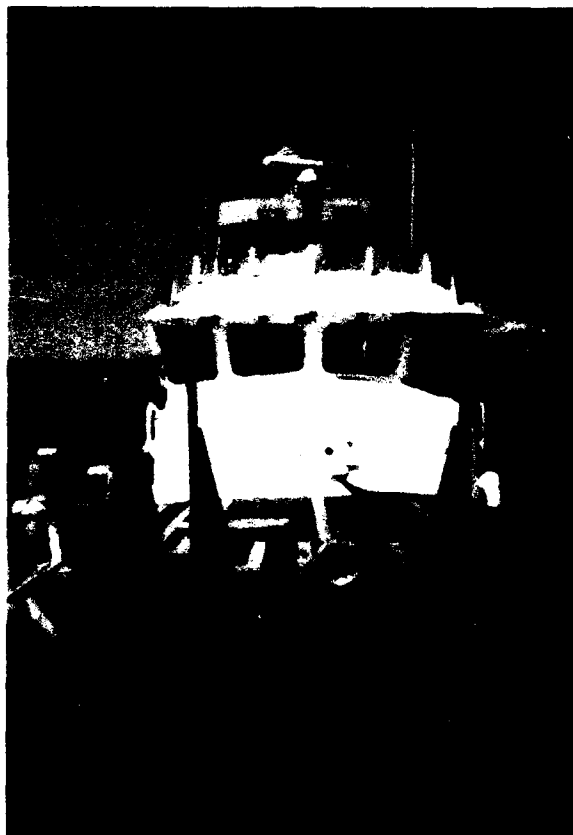


Figure 1: 47201, minus forward handrails

(Courtesy of Station Cape May)

Boat Crew Professionalism & Training

By: LCDR Bruce McIntosh and CWO3 Rick Schmidt, G-NRS-2

INITIATIVES

A lot has been happening lately in boat crew professionalism and training. This article will update you on some of the initiatives we are working on and how they may affect you in the field.

First, let's talk about the Boat Crew Seamanship Manual. This manual has not been updated for a number of years and is being completely rewritten with the help of the UTB Systems Center and the National Motor Lifeboat School (NMLBS). One of our objectives for this manual is to "standardize" many boat procedures. These include towing, low visibility navigation, rescue and assistance, etc. With standard, routine operating procedures, boat crew proficiency should increase and consequently our mission success rate should go up.

The revised manual will include new information on Nonstandard Boat Operations, Heavy Weather Operations, Crew Efficiency Factors, Team Coordination & Risk Management, First Aid, Person in the Water Recovery, and Weather & Oceanography. It will also outline emergency crew procedures for

different types of boat mishaps, including "emergency procedures in the event of capsizing." Our goal is to learn from previous field mishaps and incorporate those lessons into crew guidance for safer boat operations.

Another area we've concentrated on is Team Coordination Training (TCT). TCT is a program that focuses on reducing the probability of human error by increasing individual and team effectiveness. We believe that emphasis on coordinated teamwork will produce safer, more effective boat crews. To achieve this goal, we're dedicating blocks of training on these concepts at NMLBS, UTB SYS Center and OIC school. We also will include TCT and Risk Management methodology into the updates to the Coast Guard Addendum to the National SAR Manual, Boat Operator Handbooks and Boat Crew Qualification Guides. Although incorporating these ideas into our every day missions will take time, it is our belief that by doing so we may reduce boat mishaps.

I appreciate those of you who have called or written us with new ideas and encourage your continued input.

READY FOR OPERATIONS VIDEO

Ready For OPS, "A Daily Commitment" is the title of a video that will be distributed to districts (OSR), groups, and stations this fall.

The video is a depiction of a new officer in charge taking various courses of action on the materiel readiness condition of the unit's standard boats during the first days in command. The video is 14 minutes in length. It was designed for an audience of personnel at stations, groups, and districts involved in the maintenance, support, and management of standard boats.

It was developed and produced by personnel from the Station Study Implementation Staff (G-N1), Search and Rescue Division (G-NRS), and the Motor Lifeboat/Utility Boat Standardization Teams. The

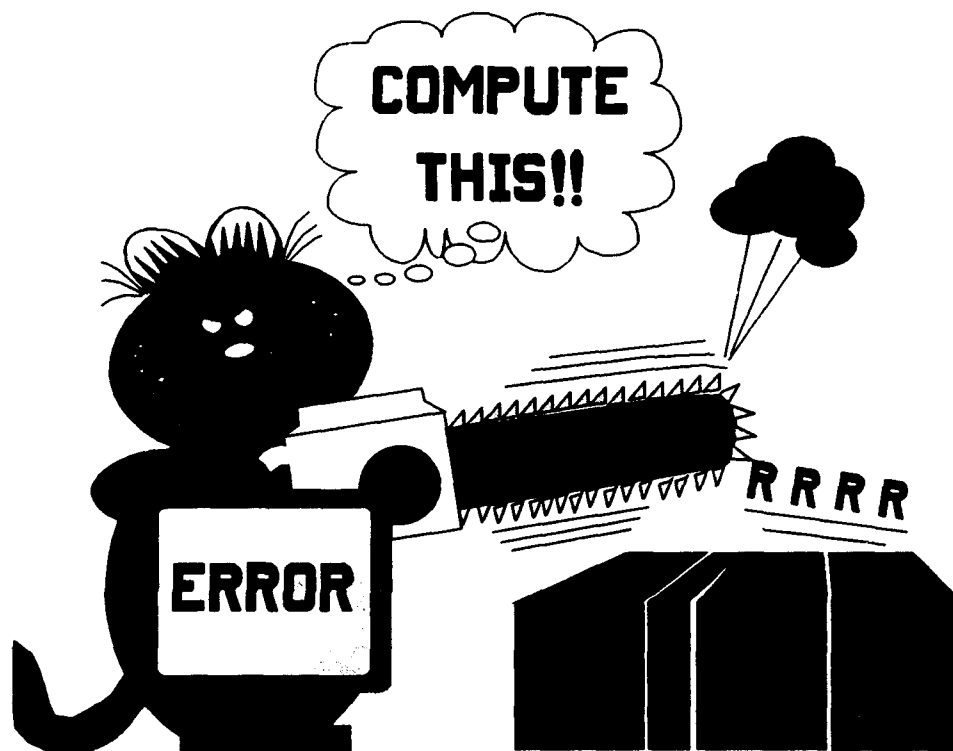
video should be used as a teaching tool that focuses on the following goals:

1. Stresses the importance of cooperation between individuals and groups up and down the chain of command.
2. Stresses the need throughout the chain of command to recognize and proactively correct discrepancies affecting boat readiness.
3. Points out the most common discrepancies the standardization teams find that impair boat/operational readiness while conducting assessment visits.

After initial distribution, additional copies may be requested from the U. S. Coast Guard Institute Video Library. o/s

Help! SARMIS Bugs & Errors

By: ENS Tracey Cooper, G-NRS-1



After we released the new versions of SARMIS last fall, we discovered a couple of bugs. Since there are still quite a few units who have not yet converted to DES 2.0, I would like to bring them to your attention and let you know what we're doing to correct the problems.

Of the many units who upgraded to DES 2.0, only a few had difficulties loading the new software. The symptoms were: a slow CPU, SARMIS takes a long time to load (more than 1 minute for the main menu to appear), and in some instances, the system will crash. If you try to reboot the system, you'll probably get error code 202 (directory full). The <\$000> directory will be full of temporary files that need to be deleted.

Although we weren't able to figure out why these particular units were the only ones affected, EECEN developed a preventive cure for those units who have not yet done the conversion.

Before you upgrade to DES 2.0, go into the OPFAC directory and locate a file named "delete.prt". Delete this file (this will not cause any problems as it will be recreated when you load the new software). Go into [Sys]<\$000> volume/directory and delete all files. Load DES 2.0 according to the directions in the software release notice. If you have any other problems, contact EECEN SARMIS Support at (609) 523-7324.

If this makes absolutely no sense to you, then you will probably not be doing the software upgrade yourself. Please pass along this article to your Regional Systems Manager.

Problem #2...this is not actually a bug. G-NRS-1 decided to make screen C02-COMMUNICATIONS ASSISTANCE RENDERED a mandatory screen (based on a requirement to capture personnel time spent on Search and Rescue). This screen was previously

optional. The caption at the top that states, "If none of the answers apply, skip this question" is misleading since you can no longer skip it. EECEN is working to change the screen back to optional, but you won't see that until the next version is released. Meanwhile, if none of the answers seem to fit your particular case, the last one, "Communications with other CG units" should at least come close.

We strive to improve SARMIS at every possible opportunity. . . and there are occasions where we have overlooked the obvious. You've been a big help in filling us in if something is not quite right. . . so that WE can make it right. As I've stated before, the only way to get good information out, is to put good data in.

Now, on to the next topic. . . SARMIS errors. Of the time the District SAR Data Coordinators spend on SARMIS, the majority is spent fixing errors. Keep in mind, this is a collateral duty for them too. I asked them to send me some examples of the errors they see most often, so that I could make you aware of them.

1. Screen A03-DATE/TIME SMC NOTIFIED is looking for the time the COAST GUARD was first notified NOT the time the SMC was notified. We changed the wording on the screen to reflect this in DES 2.0.
2. When sending your SARMIS data to a floppy disk or a file to be E-Mailed, SARMIS_TEXT is the default

filename. You may change this, HOWEVER, the filename must be under 17 characters and no spaces are allowed. Some examples of good filenames are: SARMIS.17May94 or SARMIS-GruWH-1.

3. Units often enter the wrong MUCNO or just enter 0000. Check the message traffic to make sure you're entering the correct MUCNO or call the Group/District. This particular problem creates delays for everyone involved in the multi-unit case because MUCNOs don't leave the district until all responses associated with it are correct.

4. When entering data about the vessel assisted, if you enter type and/or usage, you must enter the length. It may not be mandatory in DES but the case gets held up at the district where that information must be entered. If you don't have that information, please give it your best educated guess. In cases of false alarms and hoaxes, those fields will be zeroed out.

Please, take your time when filling out SARMIS reports. The information is used, not only to produce the annual SAR STATISTICS PUB (COMDTPUB P16107.6), but also for projects like Station Releveling and 47' MLB acquisition & placement.

Most importantly, get those reports in! If you work a SAR case, and don't submit the report, there's no way to get credit for your hard work. o/s



The Recreational Boating Safety Program: Preventive Search and Rescue

By: CAPT J. A. Stimat, G-NAB

Most often the importance of the Recreational Boating Safety Program goes unnoticed in the hustle and bustle of day to day Coast Guard responses to the marine community's needs. With ongoing operations making front page news on a daily basis, it is easy to overlook the contribution of preventive programs like RBS, Aids to Navigation (ATON), Commercial Vessel Safety and Marine Environmental Response. Usually these programs come into the limelight only after some horrific event, e.g. EXXON VALDEZ, the boating death of the Cleveland Indians' pitchers, when fishing vessels sink, etc. This is not unusual and is to be expected when the intent of a program is to be proactive in preventing the need for a response.

What does this mean to the Search and Rescue community? Simply put, SAR is a response to a failure in the preventive methods of RBS, ATON, or Merchant Vessel Inspections. Whether the failure is operator, waterways system, vessel, or equipment in nature doesn't matter. Our SAR assets are pressed into action as a result. Given projected growth in waterways

activities, it then becomes important to improve our prevention of SAR cases as a means to maximize resource use. What then is the RBS program all about and where does it operate?

CONTEXT:

Recreational boating must be placed in context within the entire spectrum of waterways activities. These range from personal/individual water activities (e.g. swimming, snorkeling, etc.) all the way through aviation activity interfaces with the water (seaplanes and Wing-In-Ground (WIG) Effect/Flarecraft). In between these extremes are a constantly shifting and overlapping host of activities, one of which is recreational boating. Not to be overlooked are commercial/public vessel and the less obvious occupational/professional boating areas. Figure 1 depicts this spectrum and notes some examples of each activity. Clearly there is a lot happening on, over, and under the nation's waterways. From a SAR standpoint, all of these are areas of interest and responsibility.

WATERWAY ACTIVITY SPECTRUM

PERSONAL/ INDIVIDUAL ACTIVITY	RECREATIONAL BOATING ACTIVITY	OCCUPATIONAL/ PROFESSIONAL ACTIVITY	COMMERCIAL/ PUBLIC ACTIVITY	AVIATION/ AIRCRAFT ACTIVITY
Swimming	Cruising	Law Enforcement	Barge	Seaplanes
Diving	Sailing	Racing	CG, NOAA	WIG/Flarecraft
Snorkeling	Skiing	Marine Facility	NAVY, COE	Hang Gliders
Racing	Fishing	Maintenance	Freighters	Float Planes
Tubing	Hunting	Test & Evaluation	Tankers	
	Racing		Bulk Carriers	

Figure 1

INTERMODAL CONSIDERATIONS

Outside the waterways activity spectrum, recreational boating also comes into conflict with other modes of transportation (as in calling for the railroad or highway bridge to open), or with environmental and resource conservation concerns (protected/endangered species, discharge restrictions, coral bed anchorage rules, etc.). Many stakeholders and customers are necessarily involved in this complex, inter and intra-modal transportation system.

As an organization within the Department of Transportation, the Coast Guard is uniquely positioned to work with other modal administrators in creating and maintaining the National Transportation System. As the designated National Recreational Boating Safety (RBS) Coordinator, the Coast Guard is responsible for working with other waterways program managers and transportation administrators to find solutions equitable for all waterways users, including the recreational boater. From this background we have developed the vision, mission and goals of the COAST GUARD's (not the division's) RBS program.

VISION:

As an agency of the federal government and a servant of the public, the Coast Guard, in its role as the designated National Recreational Boating Safety Coordinator, is a leader in improving the boating experience of the maritime public. We are an organization noted for working in partnership with all stakeholders across all modes of transportation to reach consensus solutions. We measure our success by our customers' satisfaction and their needs help define our workload and priorities.

MISSION

Within the Recreational Boating portion of the waterways activity spectrum the Coast Guard's mission is:

To minimize the loss of life, personal injury, property damage and environmental impact associated with the use of recreational boats, through preventive means, in order to maximize safe use and enjoyment of U. S. waterways by the public.

GOALS:

Four basic goals have been articulated to support this mission statement. They are:

RBS Goal 1: Improve the safety of boats and their associated equipment.

RBS Goal 2: Improve the demonstrated knowledge, skills, abilities and attitudes of boaters.

RBS Goal 3: Improve the physical and operational boating environment.

RBS Goal 4: Improve intermodal and interagency cooperation, coordination and assistance.

LINKAGE TO DOT STRATEGIC PLAN, COAST GUARD GOALS AND OTHER MISSIONS

The RBS vision, mission and goals have been linked to the Department of Transportation strategic plan and the Commandant of the Coast Guard's eight stated goals. In addition, RBS and the other waterways management related missions of the Coast Guard (Search and Rescue - SAR, Enforcement of Laws and Treaties - ELT, Marine Environmental Protection - MEP, Commercial Vessel Safety - CVS, Aids to Navigation - ATON, and Domestic Ice Operations - DIO) uniquely define our role as a steward of the nation's waterways. This role extends on, over and under the navigable waterways of the U. S. out to 200 nautical miles or further when directed. This systems approach to waterways management (WWM) ensures the most efficient use of multi-mission assets and the best support for the nation's recreational, economic, environmental, transportation and defense needs.

Hopefully, this article has helped you start to place RBS in context with other programs in the Coast Guard and see its close linkage with the SAR program. Additionally, it helps to explain the importance of: manufacturers' compliance with boat standards, the setting of such standards, educating the general boating public and encouraging operators to attend Auxiliary or Power Squadron courses, the value of effective and quality Auxiliary delivered Courtesy Marine Examination and Commercial Fishing Vessel Inspection Programs, National Safe Boating Week, courteous but thorough safety boardings, accurate and timely reporting of boarding and SAR case data, and the many other tasks performed by the people involved in the RBS program. In coming issues we will be providing a more in depth look at the functions of the RBS program, how we're organized and how we work with our many customer groups to make boating safe and rescues less difficult and dangerous. o/s

Team AMVER/Air National Guard/Coast Guard MEDEVAC

By LT R. Laahs, District 11 Command Center

AT 1215 local, 09 July 1994, District 11 Command Center received a call via the High Seas Operator in San Francisco from the 45 foot catamaran NA HOKU (U. S.). The master of the NA HOKU requested assistance in evacuating a 38 year old male crewman who had been vomiting blood since early morning. NA HOKU reported her position as 900 nautical miles West Southwest of San Diego, CA on a trip from California to Hawaii. USCG flight surgeon, Captain Burkett/Air Station Humboldt Bay, was briefed on the situation and concurred with immediate Medical Evacuation (MEDEVAC) of the patient. A check of the Automated Mutual-Assistance Vessel Rescue System (AMVER) showed the 185 meter German flagged container ship, COLUMBUS CALIFORNIA, 240 nautical miles from scene. The ship was contacted via Inmarsat and immediately diverted to the NA HOKU position. Simultaneously, the 129TH Aerospace Rescue and Recovery Group (ARRG) of the Air National Guard (ANG) at Moffet Field (San Francisco area) was contacted regarding availability of resources. The 129TH ARRG had provided invaluable assistance in the past for MEDEVAC's utilizing their fixed wing HC-130's, in-flight refuelable HH-60 helicopters and elite Para-Rescue Jumpers (PJ's). The 129TH indicated that they were willing to parachute several Para-Rescue Jumpers with advanced life support equipment to stabilize the patient for a hoist by ANG/USCG helicopter when within range. Their hoist capable helicopters, with a maximum in-flight refuelable range of 700 miles were all down for repair. A formal request to utilize the 129TH PJ's was issued to the Air Force Rescue Coordination Center (AFRCC) in Langley, VA.

Shortly after midnight local time on 10 July, COLUMBUS CALIFORNIA rendezvoused with NA HOKU. Utilizing her lifeboat, the merchant vessel expertly transferred the stricken crewman and initiated advanced lifesaving procedures. As the Good Samaritan COLUMBUS CALIFORNIA continued her easterly course, the patient's condition rapidly

deteriorated. A 129TH HC-130 Hercules launched from Moffett Field and was over the vessel just before noon. Four PJ's parachuted into the water as a COLUMBUS CALIFORNIA lifeboat stood by to retrieve them and their gear from the 6-9 foot seas on scene.

For the next 24 hours, the medically skilled Para-Rescue Jumpers valiantly fought to save the life of the critically ill patient. They continued the life sustaining intravenous infusions of saline solution initiated by the COLUMBUS CALIFORNIA and administered packed red blood cells as well. The decision was made to hoist the patient when the merchant ship was within 300 miles of the California coast. Air Station San Francisco was briefed and an HH-60J Jayhawk helicopter readied to sortie from Vandenberg Air Force Base (50 NM West Northwest of Santa Barbara, CA).

On the morning of 11 July, an Air Station San Diego HU-25 Falcon Jet air dropped more badly needed medical supplies to the COLUMBUS CALIFORNIA. An HC-130 from the 129TH ARRG was enroute to drop oxygen containers as the patient was unable to breathe on his own and an Air Station San Francisco HH-60J was enroute Vandenberg AFB for refueling before the long range hoist. Despite the enormity of this major humanitarian rescue operation and the valiant efforts of the four Para-Rescue Jumpers, the patient succumbed.

POSTSCRIPT: COLUMBUS CALIFORNIA was presented the Coast Guard Public Service Commendation upon her arrival in Long Beach, CA on 12 July. She was cited in part for "...extraordinary determination and perseverance. . . in keeping with maritime tradition of assistance to those in distress...". The father, mother and a friend of the deceased visited the District Eleven Command Center on 12 July and after receiving a full briefing on the case from start to finish, thanked us for our extraordinary efforts on behalf of their son. *ols*

Search and Rescue Highlights

At about 6:30 P.M. on 13 June, the U.S. Coast Guard's Atlantic Area Command Center received a report of a distress signal transmitted by an Electronic Position Indicating Radio Beacon (EPIRB) from a position in the Atlantic Ocean about 900 miles northeast of Bermuda. The source of the signal was determined to be the French sailing vessel RADICAL, with two persons on board.

In an attempt to identify the vessel, the Coast Guard requested the assistance of the Rescue Coordination Centers in Etel, France and Halifax, Nova Scotia, as well as Harbor Radio in Bermuda, and marine traffic in the general area of the signal.

The FAA's New York Air Route Traffic Control Center (ARTCC) in Ronkonkoma, New York, assisted in the search by identifying a Navy C-141 aircraft, enroute from Norfolk to Rota, Spain over the vicinity, and altering its route so it could make call outs for the vessel to determine the nature of the distress.

The 35-foot trimaran had capsized in six foot seas with a 15-knot wind. The Coast Guard diverted a C-130 aircraft from a routine patrol to investigate, but it would take 90 minutes for the plane to reach the scene.

The Coast Guard then turned to the Automated Mutual-assistance Vessel Rescue (AMVER) system to determine if there were any merchant ships in the area. AMVER is a voluntary, worldwide network of ships from 124 nations reporting their positions on a daily basis. A computer, located in Martinsburg, West Virginia, stores this information and provides the estimated position of some 2,700 ships around the globe each day. The computer identified the M/V CHIQUITA BARU, of British registry as being in the area.

The Rescue Coordination Center on Governors Island, New York requested the 169-foot long, refrigerated cargo ship to divert to render assistance. At 9:25 P.M., the ARTCC, known as New York Ocean, reported to

Governors Island that it was monitoring the Coast Guard C-130 talking to the CHIQUITA BARU, which was now on scene.

The ship's Captain reported finding the sailing vessel upside down, with no sign of survivors. On closer investigation, the ship's crew found the two sailors huddled in the cabin in an attempt to conserve energy. By 10:00 P.M., they were transferred to the ship in good health, where they remained until its next port of call in Fernandina, Florida.

The survivors, Patrick Mazuay of France and Marteen Dirkz-Wagner of the Netherlands, arrived early Friday morning, 17 June, at the port which is located just north of Jacksonville.

* * *

On 08 June 1994, District 11 Command Center received a request from the Tijuana, Mexico lifeguards via Group San Diego for assistance in locating a reported surfer in distress in the vicinity of the US/Mexican border. An Air Station San Diego HH-65 was diverted from training and a Station San Diego UTB was scrambled for the search. The HH-65 was granted Right of Assistance to enter Mexican waters if needed for emergent SAR. Upon arriving on scene, the HH-65 located the surfer, in a black wet suit, paddling for shore just north of the Mexican border. The helicopter tracked the surfer to shore in the vicinity of Imperial Beach, where he discarded his surfboard and began running to the north. The HH-65, low on fuel, returned to base. The UTB was unable to acquire the surfer visually and also departed the scene. The U. S. Border Patrol was contacted for assistance and upon arriving on scene discovered the surfboard but not the surfer. The surfboard had 85 pounds of marijuana strapped to it. The surfer was not apprehended.

Contributed by LT R. Laahs, D11

o/s

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The deadline for submitting articles to appear in the next issue of ON SCENE is 31 October 94. Please try to keep them under three pages if at all possible. If you submit an article for publication and have it typed on the CG standard terminal, it will save us typing time. Copy the submission on a 5-1/4" floppy disk and mail it with a printed copy. E-mail with a document designer attachment is also acceptable. Pictures are most welcome. Please tell us if you wish the disk to be returned. Arrangements can also be made to accept articles over a modem.
